

What is claimed is:

1. A light emission device comprising:

a substance disposed in a vacuum atmosphere and serving
5 as an emitter made of a dielectric material; and
a first electrode, a second electrode, and a
fluorescent body which are disposed in contact with said
substance serving as the emitter;

wherein when a drive voltage is applied between said
10 first electrode and said second electrode, the polarization
of at least a portion of said substance serving as the
emitter is reversed or changed to emit electrons from at
least a portion of said first electrode, and said electrons
impinge upon said fluorescent body to emit light therefrom.

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2. A light emission device according to claim 1,
wherein said first electrode and said fluorescent body are
disposed on a first surface of said substance serving as the
emitter, and said second electrode is disposed on a second
20 surface of said substance serving as the emitter.

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3. A light emission device according to claim 2,
wherein said first electrode and said fluorescent body have
an outer peripheral edge and an inner peripheral edge,
respectively, which face each other.

4. A light emission device according to claim 2,

wherein said fluorescent body and said first electrode have an outer peripheral edge and an inner peripheral edge, respectively, which face each other.

5 5. A light emission device according to claim 2, wherein said first electrode and said second electrode have respective projected shapes as viewed in plan, and the projected shape of said second electrode has a protruding portion which protrudes from a peripheral edge of the
10 projected shape of said first electrode.

15 6. A light emission device according to claim 5, wherein the projected shape of said first electrode and the projected shape of said second electrode are similar to each other.

20 7. A light emission device according to claim 5, wherein said protruding portion has a maximum length ranging from 1 µm to 500 µm.

25 8. A light emission device according to claim 1, wherein said first electrode and said second electrode are disposed in contact with a principal surface of said substance serving as the emitter, with a slit defined between said first electrode and said second electrode, said fluorescent body being disposed in at least said slit.

9. A light emission device according to claim 8,
wherein said substance serving as the emitter has a portion
exposed at least between said first electrode and said
fluorescent body.

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10. A light emission device according to claim 8,
wherein said first electrode and said fluorescent body have
an outer peripheral edge and an inner peripheral edge,
respectively, which face each other.

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11. A light emission device according to claim 10,
wherein said fluorescent body and said second electrode have
an outer peripheral edge and an inner peripheral edge,
respectively, which face each other.

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12. A light emission device according to claim 8,
wherein said second electrode and said fluorescent body have
an outer peripheral edge and an inner peripheral edge,
respectively, which face each other.

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13. A light emission device according to claim 12,
wherein said fluorescent body and said first electrode have
an outer peripheral edge and an inner peripheral edge,
respectively, which face each other.

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14. A light emission device according to claim 8,
wherein said fluorescent body is disposed in covering

relation to said second electrode.

15. A light emission device according to claims 1,
wherein a step includes a preparatory period in which a
5 first voltage making the potential of said first electrode
higher than the potential of said second electrode is
applied between said first electrode and said second
electrode to polarize said substance serving as the emitter,
and an electron emission period in which a second voltage
10 making the potential of said first electrode lower than the
potential of said second electrode is applied between said
first electrode and said second electrode to reverse or
change the polarization of said substance serving as the
emitter to emit electrons therefrom, and said step is
15 repeated.

16. A light emission device according to claim 8,
wherein a step includes a preparatory period in which a
first voltage making the potential of said first electrode
20 higher than the potential of said second electrode is
applied between said first electrode and said second
electrode to polarize said substance serving as the emitter,
and an electron emission period in which a second voltage
making the potential of said first electrode lower than the
potential of said second electrode is applied between said
25 first electrode and said second electrode to reverse the
polarization of said substance serving as the emitter to

emit electrons from said first electrode, and a first cycle includes at least one said step, wherein a step includes a preparatory period in which said second voltage is applied between said first electrode and said second electrode to polarize said substance serving as the emitter, and an electron emission period in which said first voltage applied between said first electrode and said second electrode to reverse the polarization of said substance serving as the emitter to emit electrons from said second electrode, and a second cycle includes at least one said step, and wherein operation of said first cycle and operation of said second cycle are selectively performed.

17. A light emission device according to claim 15,
wherein electrons are emitted from a portion of said first electrode in the vicinity of a triple point made up of said first electrode, said substance serving as the emitter, and a vacuum atmosphere during said electron emission period in said step, and the emitted electrons impinge upon said fluorescent body to emit light therefrom.

18. A light emission device according to claim 15,
wherein electrons are emitted from a portion of said first electrode in the vicinity of a triple point made up of said first electrode, said substance serving as the emitter, and a vacuum atmosphere during said electron emission period in said step, and the emitted electrons are reflected by a

surface of said substance serving as the emitter and impinge upon said fluorescent body to emit light therefrom.

19. A light emission device according to claim 15,
5 wherein electrons are emitted from a portion of said first electrode in the vicinity of a triple point made up of said first electrode, said substance serving as the emitter, and a vacuum atmosphere during said electron emission period in said step, the emitted electrons impinge upon said substance serving as the emitter to emit secondary electrons
10 therefrom, and said secondary electrons impinge upon said fluorescent body to emit light therefrom.

20. A light emission device according to claim 16,
15 wherein electrons are emitted from a portion of said first electrode in the vicinity of a triple point made up of said first electrode, said substance serving as the emitter, and a vacuum atmosphere during said electron emission period in said step of said first cycle, and the emitted electrons impinge upon said fluorescent body to emit light therefrom,
20 and wherein electrons are emitted from a portion of said second electrode in the vicinity of a triple point made up of said second electrode, said substance serving as the emitter, and a vacuum atmosphere during said electron emission period in said step of said first cycle, and the emitted electrons impinge upon said fluorescent body to emit light therefrom.
25 and wherein electrons are emitted from a portion of said second electrode in the vicinity of a triple point made up of said second electrode, said substance serving as the emitter, and a vacuum atmosphere during said electron emission period in said step of said second cycle, and the emitted electrons impinge upon said fluorescent body to emit light therefrom.

21. A light emission device according to claim 16,
wherein electrons are emitted from a portion of said first
electrode in the vicinity of a triple point made up of said
first electrode, said substance serving as the emitter, and
5 a vacuum atmosphere during said electron emission period in
said step of said first cycle, and the emitted electrons are
reflected by a surface of said substance serving as the
emitter and impinge upon said fluorescent body to emit light
therefrom, and wherein electrons are emitted from a portion
10 of said second electrode in the vicinity of a triple point
made up of said second electrode, said substance serving as
the emitter, and a vacuum atmosphere during said electron
emission period in said step of said second cycle, and the
emitted electrons are reflected by a surface of said
15 substance serving as the emitter and impinge upon said
fluorescent body to emit light therefrom.

22. A light emission device according to claim 16,
wherein electrons are emitted from a portion of said first
electrode in the vicinity of a triple point made up of said
20 first electrode, said substance serving as the emitter, and
a vacuum atmosphere during said electron emission period in
said step of said first cycle, the emitted electrons impinge
upon a surface of said substance serving as the emitter to
emit secondary electrons therefrom, and said secondary
25 electrons impinge upon said fluorescent body to emit light
therefrom, and wherein electrons are emitted from a portion

of said second electrode in the vicinity of a triple point
made up of said second electrode, said substance serving as
the emitter, and a vacuum atmosphere during said electron
emission period in said step of said second cycle, the
5 emitted electrons impinge upon said substance serving as the
emitter to emit secondary electrons therefrom, and said
secondary electrons impinge upon said fluorescent body to
emit light therefrom.

10 23. A light emission device according to claim 1,
wherein said vacuum atmosphere has a vacuum level of at most
2000 Pa.

15 24. A light emission device according to claim 23,
wherein said vacuum atmosphere has a vacuum level of at most
 10^{-3} Pa.

20 25. A light emission device according to claim 1,
wherein said substance serving as the emitter is made of a
piezoelectric material, an anti-ferroelectric material, or
an electrostrictive material.